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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,625	11/13/2003	Lawrence J. Karr	50037.0065USD2	2408

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 MERCHANT & GOULD (MICROSOFT)  
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 MINNEAPOLIS, MN 55402-0903

EXAMINER
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NGUYEN, DUC M

ART UNIT	PAPER NUMBER
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2618

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/26/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/713,625	<b>Applicant(s)</b> KARR ET AL.	
	<b>Examiner</b> Duc M. Nguyen	<b>Art Unit</b> 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 12-19 and 44-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-19, 44-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This action is in response to applicant's response filed on 1/24/07. Claims 12-19, 44-55 are now pending in the present application. **This action is made final.**

#### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 12-17, 19, 44-45, 47, 50-51, 55 are rejected under 35 U.S.C. 103(a) as being unpatentable by **Lorang et al** (US 5,548,814) in view of **Chadwick** (US 5,168,271) and **Gaskill et al** (US 5,301,358).

Regarding claim 12, **Lorang** discloses a broadcast transmitter (see Fig. 3), comprising:  
an input-output controller (72) coupled to a first input interface (82) and to a buffer memory 78 (see Fig. 3 and col. 6, lines 40-58);

a control processor (72) coupled to said input-output controller and to a second input (84) interface (see col. 7, lines 1-8) ;

a precision time base coupled to said control processor (inherent component in order to provide clock signals to the processors and/or oscillators for operating the transmitter device);

an encoding engine coupled to said input-output controller, said control processor,

and to a first memory (see col. 7, lines 9-11 noting for the Rx/Tx device and see Fig. 10 regarding baseband processor components of a Rx/Tx device); and

a subcarrier signal generator, coupled to said encoding engine, said control processor, a second memory, and to a subcarrier output (see col. 7, lines 9-11 noting for the Rx/Tx device and see Fig. 10 regarding baseband processor components of the Rx/Tx device).

Here, although Lorang is silent with a subcarrier generator, it is noted that since **Lorang** suggests using standard paging FM architecture for the Rx/Tx device's communication mode (see col. 10, lines 53-64), and since the standard paging FM architecture uses FM subcarrier signals for modulation, it is clear that **Lorang** would obviously suggest FM subcarrier signals as disclosed by **Chadwick** (see Fig. 2). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Lorang to incorporate an encoder and FM subcarrier signals for modulation as taught by **Chadwick**, for utilizing advantages of FM subcarrier communication protocol such as low power transmission.

However, Lorang fails to teach a variable tuning antenna for the mobile paging device. However, Gaskill teaches a variable tuning antenna for a mobile device (see Abstract, Fig. 1), wherein the antenna is periodically retuned during a listener interval, prior to the receipt of a packet of information (see col. 3, lines 1-20). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate teaching of Gaskill to Lorang to provide a variable tuning antenna for the paging transceiver in Lorang as well, for improving data reception quality. Since the broadcast data in Lorang would implicitly be scheduled for transmission (see Lorang, col. 5, lines 17-22), Lorang in view of Gaskill, would teach a mobile

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transceiver that adjusts a variable tuning element configured to tune an antenna in response to a scheduled message reception as claimed, for improving data reception quality.

Regarding claim 13, **Lorang** discloses the control processor includes at least one of a microprocessor, microcontroller, programmable logic array, programmable gate array, and an ASIC as claimed (see Fig. 10 regarding baseband processor components of the Rx/Tx device).

Regarding claim 14, it would have been obvious to one skilled in the art at the time the invention was made to modify **Lorang** to utilize field-programmable gate array for the input-output controller, for utilizing advantages of the field-programmable gate array such as low cost, fast turn around (i.e, designs can be placed on an FPGA in typically a few minutes).

Regarding claim 15, **Lorang** discloses the first input interface further comprises at least one of an RS-422 interface, an RS-232 interface, an IEEE-1394 interface, a USB interface, or an Ethernet interface as claimed (see col. 6, lines 60-61).

Regarding claim 16, it would have been obvious to one skilled in the art that the Ethernet interface as disclosed by **Lorang** (see col. 6, lines 60-61) could also be used for the second interface (84) as well, for interfacing to the PSTN/PDN network (see col. 7, lines 4-8).

Regarding claim 17, since the use of 1-ppm oscillator as a precision time base is well known in the art, it would have been obvious to one skilled in the art at the time the invention was made to modify **Lorang** to provide a 1-ppm oscillator for the precision time base as claimed, for utilizing advantages of this standard 1-ppm oscillator such as cost.

Regarding claim 19, it would have been obvious to one skilled in the art at the time the invention was made to modify **Lorang** to utilize field-programmable gate array for the

modulator, for utilizing advantages of the field-programmable gate array such as low cost, fast turn around (i.e, designs can be placed on an FPGA in typically a few minutes).

Regarding claim 44, it is rejected for the same reason as set forth in claim 12 above regarding the FM subcarrier signal generator. In addition, **Lorang** as modified would disclose data source with formatted data (see source PC 48 in Fig. 11 and col. 5, lines 15-21), a mobile device that is configured to receive data in a broadcast mode and a localcast mode (see Fig 11 and col. 12, lines 42-45), and that the FM subcarrier baseband signals is transmitted to the mobile device in accordance with a predetermined schedule (see col. 4, lines 60-62 and col. 5, lines 20-21), such that the mobile device receives the FM subcarrier baseband signals when in the broadcast mode (see Fig 11 and col. 12, lines 42-45).

Regarding claim 45, it is rejected for the same reason as set forth in claim 44 above. In addition, as admitted by applicant in [0036], a High-Level Data Link Control (HDLC) protocol is a standardized, bit oriented, switched and non-switches protocol, and can be found in ISO standards such as ISO 3309 or ISO 4335. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify **Lorang** to utilize a HDLC protocol as claimed, for utilizing advantages of a standardized protocol such as popularity and cost.

Regarding claim 47, it is rejected for the same reason as set forth in claim 12 above. In addition, **Lorang** as modified would disclose the encoded data corresponds to an output image resulting from the means for encoding hashing (or interleaving) and placing packets within a frame received as the formatted data (see **Chadwick**, Fig. 2 and col. 4, line 51 – col. 5, line 6).

Regarding claim 50, the claim is interpreted and rejected for the same reason as set forth in claim 48 above. In addition, **Lorang** as modified would disclose commands (i.e, specified

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time and frequency of the message, see Lorange col. 5, lines 20-21), hashing (or interleaving, see Chadwick, Fig. 2), filtering and amplifying (see Lorange, Fig. 12). As to the claimed limitation regarding the time-diversity stages, it is noted that the use of a transmit diversity is well known in the art (i.e, frequency diversity, space diversity, coded diversity, etc). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Lorange to transmit the message with time-diversity stages as claimed, for reducing/minimizing signal reception errors caused by fading.

Regarding claim 51, the claim is interpreted and rejected for the same reason as set forth in claim 45 above regarding the HDLC protocol.

Regarding claim 55, the claim is interpreted and rejected for the same reason as set forth in claim 50 above. In addition, **Lorang** as modified would disclose the subcarrier signal generator is further arranged to modulate data corresponding to the output image utilizing quadrature phase shift keying (see Chadwick, Fig. 2 regarding DQPSK modulator 130).

3. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable by **Lorang** in view of **Chadwick** and **Gaskill**, and further in view of **Cox** (US 5,732,333).

Regarding claim 18, **Lorang** as modified would disclose the subcarrier signal generator is further comprised of a modulator (see modulator 130 in Fig. 2 of Chadwick), and an output filter (see filter 336 in Fig. 10). Although Lorange as modified is silent on a digital-analog converter, it is noted that since the modulator data are digital data, it is clear that a digital-analog converter would be needed in order generate a carrier analog signal for RF transmission as disclosed by **Cox** (see D/A 112 in Figs. 1 and 2). Therefore, the claimed imitation regarding a

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digital-analog converter is made obvious by Lorang and Cox, in order to generate a carrier analog signal.

4. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable by **Lorang** in view of **Chadwick and Gaskill**, and further in view of **Campana** (US 6,567,397).

Regarding claim 46, it is rejected for the same reason as set forth in claim 44 above. In addition, since the use of a wildcard value in the address field to enable deliver of data to a group of receivers is well known in the art as disclosed by **Campana** (see col. 2, lines 60-61), it would have been obvious to one skilled in the art at the time the invention was made to modify Lorang to create an address field corresponding to the formatted data, such that wildcard values inserted into the address field, to enable deliver of data to a group of paging receivers, thereby allow fewer channels to handle multiple broadcast transmitters (i.e, a single channel can be used to broadcast a message to a plurality of receivers).

5. Claims 48-49, 52-53 are rejected under 35 U.S.C. 103(a) as being unpatentable by **Lorang** in view of **Chadwick and Gaskill**, and further view of **Weng** (US 4,856,003).

Regarding claim 48, it is rejected for the same reason as set forth in claim 44 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to modify Lorang to split the formatted data into a first stream and a second stream, interleave bits from the first stream with bits from the second stream into separate segments, and merge the segments in producing the encoded data as disclosed by **Weng** (see col. 2, lines 27-47), for error correction (ECC or Forward-error-correction FEC) purpose.



Regarding claim 49, the claim is interpreted and rejected for the same reason as set forth in claim 48 above. In addition, **Lorang** as modified would disclose encoding the formatted data is further arranged to divide the merged segments into predetermined segments wherein in each segment corresponds to a predetermined number of symbols, such that the encoded data is produced (see **Weng**, col. 2, lines 27-47).

Regarding claims 52-53, the claim is interpreted and rejected for the same reason as set forth in claims 48-49 above.

6. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable by **Lorang** in view of **Chadwick** and **Gaskill**, and further in view of **Misaizu** (US 5,487,089).

Regarding claim 54, the claim is interpreted and rejected for the same reason as set forth in claim 50 above. In addition, since **Lorang** as modified would disclose the subcarrier signal generator is further arranged to modulate data corresponding to the output image utilizing quadrature phase shift keying (see **Chadwick**, Fig. 2 regarding DQPSK modulator 130), and since the QPSK modulator that modulates data correspond to symbol by symbol under the transmit clock timing is known in the art as disclosed by **Misaizu** (see col. 8, lines 1-5 and col. 9, lines 1-15), the claimed limitation is made obvious by **Chadwick** and **Misaizu**, so that the symbol can be modulated and transmitted in a frame according to transmitting timeslots.

### *Response to Arguments*

7. Applicant's arguments with respect to claims 12-19, 44-55 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

See the attached PTO-892.

10. **Any response to this final action should be mailed to:**

Box A.F.

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

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(571) 273-8300 (for **formal** communications intended for entry)

(571)-273-7893 (for informal or **draft** communications).

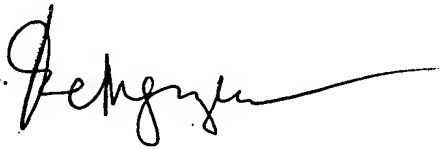
Hand-delivered responses should be brought to Customer Service Window,  
Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry concerning this communication or communications from the examiner  
should be directed to Duc M. Nguyen whose telephone number is (571) 272-7893, Monday-  
Thursday (9:00 AM - 5:00 PM).

Or to Matthew Anderson (Supervisor) whose telephone number is (571) 272-4177.

Duc M. Nguyen, P.E.

Mar 18, 2007

A handwritten signature in black ink, appearing to read 'D. Nguyen', with a long horizontal flourish extending to the right.